MYCOTAXON

ISSN (print) 0093-4666 (online) 2154-8889 Mycotaxon, Ltd. ©2019

April–June 2019—Volume 134, pp. 329–334

https://doi.org/10.5248/134.329

Cordana meilingensis and *C. lushanensis* spp. nov. from Jiangxi, China

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Abstract—Two new anamorphic fungi, *Cordana meilingensis* and *C. lushanensis,* were collected from dead branches in Jiangxi Province, China. *Cordana meilingensis* is characterized by its oblong or cylindrical, medially 1-septate, brown, smooth conidia with a prominent hilum. *Cordana lushanensis* is distinguished by its ellipsoidal to obovoid, pale brown, aseptate, smooth conidia with a prominent basal scar. They are described, illustrated, and compared with similar taxa.

Key words—asexual fungi, *Cordanaceae*, *Cordanales,* hyphomycetes, taxonomy

Introduction

Preuss (1851) established *Cordana* with three species, without designating a type species, and subsequently added a fourth species (Preuss 1853). However, Saccardo (1886) redescribed *Cordana*, retaining only one species, *C. pauciseptata* Preuss, which thus effectively became the type species (Hughes 1958, Seifert & al. 2011; epitypified by Hernández-Restrepo &

al. 2014). *Cordana* is mainly characterized by distinct, simple or sparely branched conidiophores, and solitary, acropleurogenous, 0–1-septate conidia seceding schizolytically from polyblastic, integrated, terminal and becoming also intercalary, sympodial conidiogenous cells with small denticles, the conidia are ellipsoidal, ovoid, obovoid, pyriform or cylindrical, often with a prominent hilum (Ellis 1971, Markovskaja 2003). Castañeda-Ruíz & al. (1999) reviewed 17 species of *Cordana* and provided a comparative table that distinguished 11 accepted *Cordana* species. However, Markovskaja (2003) regarded *C. miniumbonata* R.F. Castañeda & al. as a problematic species due to its conidial shape and septation mode. *Cordana* currently contains 19 recognized species (Hernández-Restrepo & al. 2014), distinguished primarily by conidial features including shape, size, septation, pigmentation, ornamentation, and presence or absence of a synanamorph (Castañeda-Ruíz & al. 1999, Markovskaja 2003, Hernández-Restrepo & al. 2014).

During our continuing survey (2005–18) of microfungi from plant debris in the forests of southern China, two species referable to the genus *Cordana* were collected on dead branches in Jiangxi Province. A close examination of the two fungi showed that they have significant differences from previously described *Cordana* species and are therefore proposed as new to science.

Cordana meilingensis C.C. Ai, Jian Ma, X.G. Zhang & R.F. Castañeda, **sp. nov.** Fig. 1
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Differs from *Cordana johnstonii*, *C. uniseptata*, and *C. versicolor* by its smaller oblong or cylindrical, medially 1-septate, concolorous conidia; and from *C. mercadoana* by its larger, medially 1-septate, brown conidia.

Type: China, Jiangxi Province: Meiling National Park, on dead branches of an unidentified broadleaf tree, 8 October 2013, J. Ma (**Holotype**, HJAUP M0144).

Etymology: refers to the locality where the type specimen was found.

Colonies on the natural substratum effuse, brown to dark brown. Mycelium partly superficial, partly immersed, composed of branched, septate, smooth, subhyaline to pale brown hyphae. Conidiophores macronematous, mononematous, unbranched, erect, straight or flexuous, cylindrical, smooth, septate, brown to dark brown, paler towards the apex, 73–185 × 4–5 µm, occasionally swollen at the base, 5.5–9 µm diam. Conidiogenous cells polyblastic, integrated, terminal and intercalary, with subhyaline and slightly prominent scars, cylindrical. Conidial secession schizolytic. Conidia solitary, acropleurogenous, dry, medially 1-septate, often slightly constricted at the septa, oblong or cylindrical, brown, smooth, 10–13 × 5.5–7 µm, with a prominent hilum, 0.5–1 × 0.5 µm.

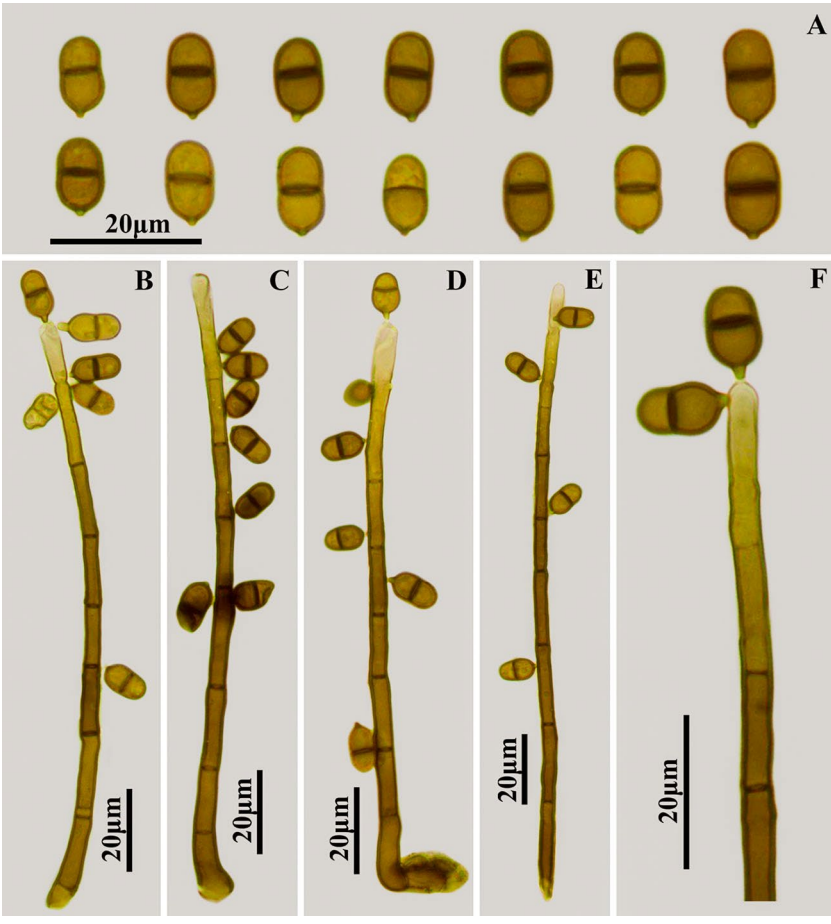

Fig. 1. *Cordana meilingensis* (holotype, HJAUP M0144).
A. Conidia; B–F. Conidiophore with conidia.

Comments—*Cordana meilingensis* resembles *C. johnstonii* M.B. Ellis, *C. uniseptata* L. Cai & al., *C. versicolor* D.J. Soares & R.W. Barreto, and *C. mercadoana* Hern.-Restr. & al. in conidial shape (Table 1). However, *C. johnstonii* has larger broadly ellipsoidal conidia and grows only on plants in the genus *Musa* (Ellis 1971); *C. uniseptata* produces larger broadly ellipsoidal, asymmetrically 1-septate, versicolored conidia (Cai & al. 2004); *C. versicolor* differs by its larger broadly ellipsoidal conidia with a paler basal cell and is parasitic on *Canna denudata* Roscoe [= *C. paniculata* Ruiz & Pav.]

(Soares & al. 2005); and *C. mercadoana* differs by its smaller, versicolored, 0–1-septate conidia (Hernández-Restrepo & al. 2014).

Table 1. Comparisons of conidia and substrates of *Cordana meilingensis* and similar species

Species	Conidia				Substrate
	Shape	Size (μm)	Color	Septation	
C. johnstonii [1]	Broadly ellipsoidal	20–30 × 12–18	Uniform	Medially 1-septate	Parasitic on *Musa* spp.
C. meilingensis	Oblong or cylindrical	10–13 × 5.5–7	Uniform	Medially 1-septate	Saprobic on dead branches
C. mercadoana [2]	Oblong, obovoid, or cylindrical	6–10 × 3–4	Variable	0–1-septate	Saprobic on dead twig
C. uniseptata [3]	Broadly ellipsoidal	13.5–23 × 8.5–11.5	Variable	Asymmetrically 1-septate	Saprobic on bamboo
C. versicolor [4]	Broadly ellipsoidal	15–25 × 10–15	Variable	Medially 1-septate	Parasitic on *Canna denudata*

Data from [1] Ellis (1971); [2] Hernández-Restrepo & al. (2014); [3] Cai & al. (2004); [4] Soares & al. (2005)

Cordana lushanensis C.C. Ai, Jian Ma, X.G. Zhang & R.F. Castañeda, **sp. nov.** Fig. 2

IF 555814

Differs from *Cordana verruculosa* by its larger smooth conidia; from *C. semaniae* and *C. solitaria* by its smaller ellipsoidal to obovoid, pale brown conidia with a prominent basal scar; and further from *C. solitaria* by lacking a *Bispora*-like synanamorph.

Type: China, Jiangxi Province: Lushan (Mount Lu), on dead branches of an unidentified broadleaf tree, 8 November 2017, J. Ma (**Holotype**, HJAUP M5406).

Etymology: refers to the locality where the type specimen was found.

Colonies on the natural substratum effuse, brown to dark brown. Mycelium partly superficial, partly immersed, composed of branched, septate, smooth, subhyaline to pale brown hyphae. Conidiophores macronematous, mononematous, simple or branched, erect, straight to flexuous, cylindrical, with intercalary nodes, 7–14 μm diam, brown, paler toward the apex, smooth, ≤240 × 6.5–7.5 μm. Conidiogenous cells integrated, polyblastic, terminal and intercalary, with subhyaline small denticles, proliferations percurrent, cylindrical to lageniform. Conidial secession schizolytic. Conidia solitary, acropleurogenous, dry, 0-septate, ellipsoidal to obovoid, pale brown, smooth, 5.5–8 × 2.5–4 μm, with a prominent basal scar, 0.3–0.5 μm diam.

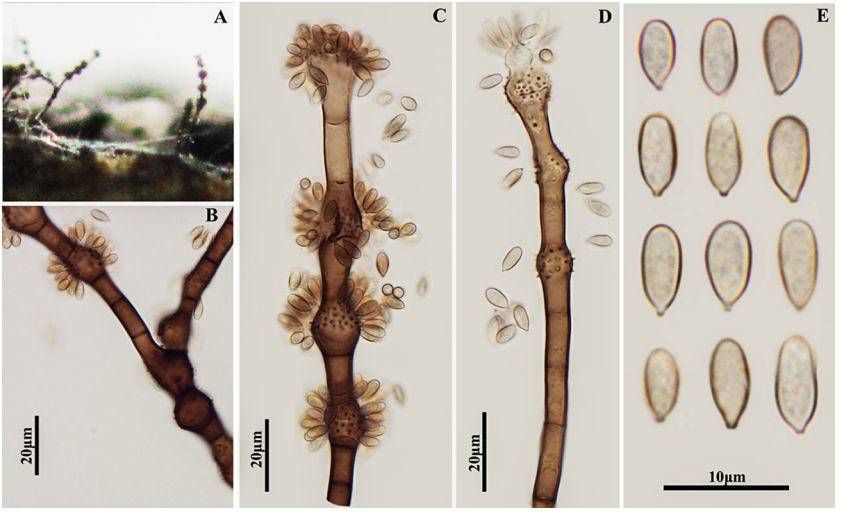

Fig. 2. *Cordana lushanensis* (holotype, HJAUP M5406).
A. Colonies on natural substratum; B–D. Conidiophores and conidia; E. Conidia.

Comments – Among the known species, only *C. semaniae* Davydkina & al., *C. solitaria* V. Rao & de Hoog, and *C. verruculosa* Hern.-Restr. & al. resemble *C. lushanensis* in producing aseptate conidia. However, *C. verruculosa* differs by its smaller (3–5.5 × 2–3.5 µm) verruculose conidia (Hernández-Restrepo & al. 2014); *C. semaniae* differs by its larger (21–27 × 9–15 µm) obovoid black conidia with an acute basal cell (Davydkina & Mel'nik 1989); *C. solitaria* differs by its broader (4.5–6.5 µm diam) obovoid conidia with a slightly papillate base, and the presence of a *Bispora*-like synanamorph (Rao & de Hoog 1986).

Acknowledgments

The authors express gratitude to Dr. De-Wei Li (The Connecticut Agricultural Experiment Station Valley Laboratory, Windsor CT, USA) and Dr. Li-Guo Ma (Institute of Plant Protection, Shandong Academy of Agricultural Sciences, Jinan, China) for serving as pre-submission reviewers and to Dr. Shaun Pennycook for nomenclatural review. This project was supported by the National Natural Science Foundation of China (No. 31360011, 31870016), and the Jiangxi Province Department of Education, China (No. GJJ160357).

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